

August 8, 2001

**Allied Waste Industries
Keller Canyon Landfill**
901 Bailey Road
Pittsburg, CA 94565

ALAMEDA COUNTY
Roberta Cooper
Scott Haggerty
(Vice-Chairperson)
Nate Miley
Shelia Young

Attention: Mr. Lochlin Caffey
Environmental Manager

Application Number: 17438
Plant Number: 4618
Equipment Location: 901 Bailey Road
Pittsburg, CA 94565

**CONTRA COSTA
COUNTY**
Mark DeSaulnier
Mark Ross
Gayle Uilkema

Dear Mr. Christensen:

This letter is submitted in response to your comment letter dated March 22, 2001 concerning the draft Major Facility Review (MFR) Permit for the Keller Canyon Landfill, Facility #A4618.

MARIN COUNTY
Harold C. Brown, Jr.

Response to General Comments

NAPA COUNTY
Brad Wagenknecht

The Bay Area Air Quality Management District (hereafter referred to as BAAQMD or the District) added additional monitoring, recordkeeping, and reporting requirements to the MFR permit in order to assure compliance with an existing requirement, whenever the existing monitoring for that requirement was not adequate. The Title V program compels the District to include these additional requirements.

**SAN FRANCISCO
COUNTY**
Chris Daly
Tony Hall
Leland Yee

While it is true that the Title V program is not intended to create new emission limits, Section 114 of the Clean Air Act allows EPA to require additional monitoring, recordkeeping, and reporting. Sections 502 and 504 of the Clean Air Act require the permitting authority to include monitoring, recordkeeping, and reporting in Title V permits to "assure compliance". EPA does not consider monitoring to be a new regulatory limit, but rather a tool to enforce existing limitations.

SAN MATEO COUNTY
Jerry Hill
Marland Townsend
(Secretary)

SANTA CLARA COUNTY
Randy Attaway
(Chairperson)
Liz Kniss
Julia Miller
Dena Mossar

EPA included additional monitoring requirements in the regulations that implement the Title V program: 40 CFR, Part 70. Specifically, the regulations require additional monitoring if the applicable requirement does not require "periodic testing or instrumental or non-instrumental monitoring" (40 CFR 70.6(a)(3)(B)). Section 40 CFR 70.6(c)(1) states that Title V (Part 70) permits shall contain "... testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit." It is very clear that Part 70 adds monitoring where the existing monitoring is not adequate. The above requirements are echoed in the BAAQMD's Title V rule: Regulation 2, Rule 6, Major Facility Review.

SOLANO COUNTY
William Carroll

SONOMA COUNTY
Tim Smith
Pamela Torliatt

Ellen Garvey
EXECUTIVE OFFICER/
AIR POLLUTION

During development of the draft MFR permit for this facility, BAAQMD staff identified all regulatory requirements that did not have adequate monitoring in either the applicable regulation or an existing permit condition. Although each landfill facility is unique, staff discovered that many of the landfills have similar or common operations that are subject to the exact same regulations and to the same inadequate monitoring requirements. In order to fairly address the need for additional monitoring, staff developed standard permit condition language for each regulatory requirement that lacked sufficient monitoring. This standard permit condition language was used wherever possible and adapted as necessary to accommodate each unique operation. The specific instances of inadequate monitoring and the permit condition changes that were proposed to address this inadequacy were provided to you during development of the draft permit. In particular, please refer to the District's comments in italic text that followed the proposed permit condition changes in the earlier drafts of this permit (strike out and underline versions) and the accompanying correspondence letters. The permit conditions identified in your March 22, 2001 letter are discussed below.

Response to Comments on Standard Conditions

Design Capacity Limits:

In Table II of the draft MFR Permit, the term "Max. Design Capacity" was intended to be consistent with the federal definition of design capacity (40 CFR 60.751). The maximum design capacity was used to establish the applicability of various sections of Subpart WWW and should be the same as the design capacity listed on the Initial Design Capacity Report. According to EPA, this design capacity should include all solid waste and all cover materials except final cover materials. Non-degradable wastes and cover materials may be excluded from the total mass for the purposes of NMOC emission rate calculations, but not from design capacity calculations. The design capacity is usually expressed in terms of volume, but may be expressed in terms of mass, if density calculations and supporting documentation are provided. On your Initial Design Capacity Report, you indicated that the design capacity was 29.6 E+6 Mg (32.6 E+6 tons). However, the accompanying design capacity calculations indicated that the design capacity (in terms of mass) was incorrectly calculated by excluding cover materials and inerts. The Solid Waste Facility Permit that was attached to the Initial Design Capacity Report stated that the design capacity was 60-64 million cubic yards; therefore, staff listed 64 million cubic yards as the maximum design capacity on your permit. The revised Solid Waste Facility permit issued on March 22, 2000 clarifies that the 60-64 million cubic yards was meant to apply to waste only and that the air space limit is 75 million cubic yards. Please verify that the 75 million cubic yard (air space) limit is defined as all waste and cover materials except final cover. If the 75 million cubic yard limit includes final cover, please specify the maximum design capacity limit for your site that is consistent with the federal design capacity definition (waste + daily cover + intermediate cover). If you prefer, this design capacity limit can be expressed in units of volume only.

In addition to the design capacity limit discussed above, it is important to include limits on the daily waste acceptance rate and the cumulative amount of waste placed in the landfill. Changes to these limits could result in emission increases that would be subject to new source review. The District agrees that these limits should be 3500 tons/day of total waste accepted and 38.4 million tons of waste (cumulative maximum).

The District proposes to modify Table II-A Permitted Sources and Permit Condition # 17309, Part 2, as indicated on the following page, to reflect the design capacity and waste limit clarifications discussed above. The proposed 75 million cubic yard design capacity limit shown below is subject to the requested verification.

Blowers:

All current and proposed abatement equipment for this facility: A-1 Landfill Gas Flare and proposed IC Engines (S-1, S-2, and S-3) at Plant #12101; have or will have federally enforceable limits on the amount of landfill gas that may be burned in these devices. Therefore, having a limit on the amount of gas collected by the blowers is redundant. The District agrees to delete the blowers from source description for S-1 in Table II-A Permitted Sources.

Table II A - Permitted Sources

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2, Permits. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

S-#	Description	Make or Type	Model	Capacity
1	Keller Canyon Landfill with Active Gas Collection System:	Class II Disposal Operations (MSW, commercial, industrial, construction, designated, and special wastes)		Max. Design Capacity <u>(waste and cover excluding final cover) = 64.075 million yd³ (48.957.3 million m³)</u> or 38.4 million tons (34.8 million Mg) Max. Waste Acceptance Rate = 3500 tons/day <u>Max. Cumulative Waste In-Place = 38.4 million tons (34.8 million Mg)</u>
	Two Centrifugal Blowers	Lamson	853-00210-GB, each	30 hp each, 1500 scfm, each
	Gas Collection Wells, Phase I Disposal Cell			42 vertical wells
2	Wipe Cleaning Operation	Mineral Spirits		100 Gallons/year
3	Yard and Green Waste Stockpiles	Yard and Green Waste		225 tons/day

Condition # 17309

For S - 1, KELLER CANYON LANDFILL AND A-1 LANDFILL GAS FLARE:

2. Total waste accepted and placed at the landfill shall not exceed 3,500 tons in any single day. The total cumulative amount of all wastes ~~and cover materials (excluding final cover material)~~ placed in the landfill shall not exceed ~~64.0 million cubic yards nor~~ 38.4 million tons. The maximum design capacity of the landfill (total volume of all wastes and cover materials placed in the landfill, excluding final cover) shall not exceed 75 million cubic yards. [Basis: Cumulative Increase and Regulation 2-1-301]

K. Accidental Release:

As discussed in our August 31, 2000 letter, your facility is not exempt from 40 CFR Part 68, because the Fuels Regulatory Relief Act only exempts the use of landfill gas when it is used as a fuel in a process that produces heat or electricity. Burning landfill gas in a flare does not qualify your process for the Fuels Regulatory Relief Act exemption. However, you submitted documentation on October 4, 2000 demonstrating that you will store less than 10,000 pounds of methane on site. Since your process will store less than a threshold quantity of a regulated substance, the provisions of 40 CFR Part 68 do not apply (40 CFR 68.10(a)) and a Risk Management Plan is not required. The District removed these provisions from your permit per our December 18, 2000 letter. Section K was subsequently added to your permit in error and will be removed, as indicated below.

~~K. Accidental Release~~

~~This facility is subject to 40 CFR Part 68, Chemical Accident Prevention Provisions. The permit holder shall submit a risk management plan (RMP) by the date specified in §68.10. The permit holder shall also certify compliance with the requirements of Part 68 as part of the annual compliance certification, as required by Regulation 2, Rule 6. (40 CFR Part 68, Regulation 2, Rule 6)~~

Response to Comments on Equipment

The District concurs that the A-1 Flare should be allowed to burn sufficient propane to light the flare pilot during start-up. The District will change Table II-B as shown below:

Table II B – Abatement Devices

A-#	Description	Source(s) Controlled	Applicable Requirement	Operating Parameters	Limit or Efficiency
1	Enclosed Ground Flare, burning <u>propane (during start-up only) and</u> landfill gas exclusively	S-1	See Table IV-D	See Table VII-D	See Table VII-D

Response to Comments on Source-Specific Requirements

The District concurs that any requirements that are currently awaiting SIP approval should become federally enforceable upon receiving SIP approval by EPA. The following permit condition will be added to clarify this issue and to prevent the need for an administrative modification in the future.

Condition # 17309

For S - 1, KELLER CANYON LANDFILL AND A-1 LANDFILL GAS FLARE:

38. The non-federally enforceable portions of Regulation 8, Rules 34 and 40, shall be considered federally enforceable if EPA approves the latest rules into the State Implementation Plan or into the State Plan for Municipal Solid Waste Landfills. Any rule or rule section that is replaced by a new approved rule or section shall be considered invalid without necessity of modifying and re-approving the permit. [Basis: Regulation 2-6-207]

Response to Comments on Permit Conditions

Condition # 16462:

You are correct that Regulation 6 does not contain any monitoring for compliance with Section 6-301. As explained in the Response to General Comments, Title V permits are expected to fill these types of monitoring gaps. This gap-filling requirement is only waived where there is no possibility of non-compliance or the source is extremely small. Based on enforcement experience with yard and green waste handling operations, the District does not believe that there is “no possibility of non-compliance” for S-3. Furthermore, the emissions from S-3 are large enough to warrant a monitoring requirement. The District does not agree that the requirement to “... visually observe all unloading, stockpiling, and loading operations ...” is onerous in this case. The person that is unloading, stockpiling, or loading the yard and green waste can make the necessary visual observations. The District is not requiring formal visual emissions methods, such as EPA’s Method 9 or Method 22 nor formal record keeping logs. Other permits have requirements such as these for similar types and sizes of sources. The District does agree that Regulation 6 does not require monitoring and that the basis for the condition is therefore incomplete. The District will add the basis for the monitoring requirement, Regulation 2-6-503, which reads:

“The APCO may require that the owner or operator of any facility subject to this rule conduct any monitoring that is necessary to enable the facility and the APCO to determine emissions from the facility. The APCO may specify the format and frequency of reports for all monitoring.”

Condition # 16462

For S - 3, YARD AND GREEN WASTE STOCKPILES:

2. The yard and green waste stockpiles shall be watered down as necessary to prevent visible dust emissions during loading or unloading. Dry, dusty material shall be watered down before unloading from truck beds as necessary to prevent visible emissions. To ensure compliance with this part, the Permit Holder shall visually observe all unloading, stockpiling, and loading operations and shall immediately initiate corrective actions if any visible dust emissions are detected. [Basis: Regulation 6-301 [and Regulation 2-6-503](#)]

Condition # 17309, Part 3:

The intent of Part 3.d. is to allow Keller Canyon Landfill to use any alternative daily cover that has been approved by the California Integrated Waste Management Board as long as the use of any new daily cover materials will not result in odors, emission increases, emissions of any new pollutants, or contribute to a public nuisance. Part 3.d allows the use of new materials without the need for a permit condition (or MFR Permit) modification. For cover materials that will not result in any air impacts, the District is simply requesting to be notified of the types of cover that you are proposing to use and to get our concurrence that there will be no air impacts before you begin using them. In the past, the “written approval from the District” has taken the form of a letter from the permit engineer stating that the use of the new cover material would not have any air impacts and is acceptable for use without a District permit modification. The reasons the District now requires prior notification are that the District has had disagreements in the past with some landfill operators about whether the use of a new cover material would have an air impact and that some landfill operators began using new cover materials, which resulted in new air emissions, without requesting permit modifications from the District. No changes to the current permit condition are necessary.

Condition # 17309, Part 11:

The District is currently evaluating Permit Application # 2379 for the requested changes to Part 11. The decision on whether or not to approve these changes is not expected to occur until after the MFR Permit for this facility has been issued. If the District decides to approve these condition changes, the MFR Permit will also need to be modified. You will be notified of the District’s decision on this issue and the type of MFR Permit revision required (minor or significant) in correspondence associated with Application # 2379.

Condition # 17309, Part 18:

The Landfill Gas Collection and Control System Design Plan that was submitted for this facility contains general language indicating that the gas collection and control system will be expanded and/or modified as necessary to ensure compliance with the NSPS. It is understood that some wells may need to be shut off, disconnected, or removed from service in order to make repairs or add new components to the collection and control system. However, the design plan does not contain any specific discussion about shutting off, disconnecting, or removing wells from service (i.e. under what circumstances a well would be shut down, how many wells would be allowed to be shut down at one time, for how long, etc.). Therefore, the only approved circumstances and limitations for shutting off wells are those cited in Regulation 8, Rule 34. Changing Part 18 to allow you to shut off wells if allowed by the design plan would be misleading and inappropriate. Note that Sections 8-34-117 and 8-34-118 specifically

address the need to shut down wells in order to expand or repair the collection and control systems in order to maintain compliance with the applicable rules.

The 8-34-404 Less Than Continuous Operation Petition is intended to address the potential need for the collection and control system (or portions of the collection system) to operate less than continuously when there is not sufficient gas being produced to maintain proper operation of the collection or control system. Typically, these petitions have only been approved for older inactive or closed landfills whose gas production rates have been documented to be very low or for small areas that contain mainly non-degradable wastes. Since your facility is a relatively new active landfill (and will continue to be active through out the term of the MFR Permit) and you indicated in your design plan that there would be no non-productive areas, Section 8-34-404 is not expected to be applicable at any time during the term of this permit. Therefore, 8-34-404 was not listed as an applicable requirement in Table IV-A and cannot be cited in a permit condition.

Condition # 17309, Part 20:

After reviewing your comments concerning Part 20, subparts a. and b., the District concludes that the Regulation 8-34-408 requirement to have an approved Collection and Control System Design Plan and the Regulation 8-34-304 requirement to install "approved" gas collection system components should replace the specific collection system design criteria currently described in Part 20, subparts a. and b. Accordingly, subparts a. and b. will be deleted from the permit.

In order to determine compliance with the 8-34-301.1 continuous operation requirement, the 8-34-305 wellhead requirements, and the 8-34-505 wellhead monitoring requirements, the District must have an accurate description of the landfill gas collection system, including the number of wells that are supposed to be operating in each area. This information must be reflected in the permit in order to assure compliance. Regulation 2-1-301 states:

"Any person who, after July, 1972, puts in place, builds, erects, installs, modifies, modernizes, alters or replaces any article, machine, equipment or other contrivance, the use of which may cause, reduce or control the emission of air contaminants, shall first secure written authorization from the APCO in the form of an authority to construct. Routine repairs, maintenance, or cyclic maintenance that includes replacement of components with identical components is not considered to be an alteration, modification or replacement for the purpose of this Section unless the APCO determines the changes to be non-routine. The use or operation of the source shall initiate the start-up period in accordance with Section 2-1-411."

In accordance with the 2-1-301 above, modifying the landfill gas collection system (increasing or decreasing the number of wells or significantly changing well locations) requires an Authority to Construct. Installing, modifying, or replacing a landfill gas flare would also require an Authority to Construct. The District cannot waive these requirements. However, repairing or replacing wells with identical components would not require an Authority to Construct. The District expects that the 8-34-414 and 8-34-415 repair schedules will typically be used in the event of a damaged or plugged well. In most cases, drilling a new well in a nearby area and abandoning the damaged well can solve this problem. In this case, the replacement well would not require an Authority to Construct. Surface cracks are another common problem that might require the use of a repair schedule, but would not require an Authority to Construct.

The repair schedules were not intended to be relied upon as the sole means for determining when to add new wells. Operators of active landfills should be planning for collection system expansions as new waste is added. One of the purposes of having a design plan is to give the District the opportunity to

review and approve long term collection system plans well ahead of time. There should be ample time for the District to issue an Authority to Construct for planned gas collection system expansions, particularly if the requested expansion is consistent with the previously approved design plan. For older collection systems, the monthly and quarterly monitoring programs should indicate system deterioration before an excess occurs. In this case, operators should be looking for such deterioration and begin planning corrective measures, including submittal of a permit application, if necessary. The case where excesses occur, which could not be anticipated and cannot be repaired without the need for an Authority to Construct, is expected to be rare. Even in these rare circumstances, the District can expedite the evaluation of an Authority to Construct to ensure that our evaluation does not impact the compliance schedule.

Modifications of the landfill gas collection system are expected to be "minor permit revisions" as defined in Regulation 2-6-215. As stated in Regulation 2-6-406:

"A facility that has submitted an application for a minor revision may proceed with the revision if the facility complies with the proposed permit terms and conditions."

Therefore, the need to revise the MFR Permit for a collection system modification should have no impact your ability to comply within the 120 days allowed by the repair schedules.

As shown in Part 20.d., the District has issued an Authority to Construct to this facility for a range of wells that may be installed before the expiration date of the Authority to Construct. The actual number of wells necessary for proper operation of the system can then be refined as expansion progresses and during the start-up period allowed by Regulations 2-1-301 and 2-1-411. The final well count in Part 20.c. reflects the minimum number of wells that must be operated. These conditions give you the flexibility to quickly install new wells (within the specified limits) that you requested in the first paragraph on page 5 of your March 22, 2001 letter.

Condition # 17309, Part 23:

The District agrees that the use of the phrases "flue gas temperature" and "combustion zone temperature" in Part 23 is confusing. The limits should both apply to the temperature that is being measured pursuant to Part 22, which is the temperature of the primary combustion zone. The term flue gas temperature will be replaced with the term combustion zone temperature.

23. The ~~flue gas combustion zone~~ temperature of the flare shall be maintained at a minimum temperature of 1450 degrees F, averaged over any 3-hour period. This minimum temperature shall be adjusted via an administrative permit amendment, if a source test demonstrates compliance with all applicable requirements at a different temperature. The minimum combustion zone temperature for the flare shall be equal to the average combustion zone temperature determined during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F.

[Basis: 8-34-301, Toxic Risk Management Policy, RACT, 40 CFR 60.758(c)(1)(i)]

The first sentence of Part 23 identifies the minimum combustion zone temperature for the flare (in degrees Fahrenheit) that was determined from the most recent source test data and is consistent with the NSPS requirements. In this case, the average combustion zone temperature (1500 °F) was taken from the October 4, 1999 source test. A subsequent source test was performed on November 6, 2000, in which the average combustion zone temperature was again determined to be 1500 °F. Therefore, the minimum temperature limit of 1450 °F is still correct.

The District agrees that the correct equation pursuant to NSPS is:

$$T_{\min} = T_{\text{avg}} - 28^{\circ}\text{C}$$

T_{\min} = minimum combustion zone temperature limit, °C

T_{avg} = average combustion zone temperature measured during source test, °C

However, the temperature of 28 °C (82.4 °F) is not the same as the change of a temperature ($\Delta T = 28^{\circ}\text{C} = 50.4^{\circ}\text{F}$). Converting the entire equation to degrees Fahrenheit yields:

$$T_{\min} = T_{\text{avg}} - 50^{\circ}\text{F}$$

T_{\min} = minimum combustion zone temperature limit, °F

T_{avg} = average combustion zone temperature measured during source test, °F

For example, if the source test measured 800 °C. The minimum temperature limit would be $(800 - 28) = 772^{\circ}\text{C}$. Converting the two temperatures from Celsius to Fahrenheit yields a source test temperature of 1472 °F and a minimum temperature of 1422 °F, with a difference of 50 °F.

The requirement that the minimum combustion zone temperature for the flare not be less than 1400 °F is the historical minimum temperature requirement for this flare and was based on the temperature needed for adequate destruction of toxic air contaminants. This temperature could be modified at a later date, if you demonstrate that a lower temperature would not increase emissions of toxic air contaminants above the emission rates used in the risk screening analysis for the flare or that the facility will comply with the District's Toxic Risk Management Policy at higher flare emission rates.

Condition # 17309, Part 29:

For Part 29, the District intentionally included only the two currently effective flare destruction efficiency requirements so that the entire condition would be federally enforceable. However, to improve clarity, the District will add the future effective requirements as a non-federally enforceable subpart.

29.
 - a. The flare destruction efficiency of total hydrocarbons shall not be less than 98% by weight. [Basis: 8-34-301.3, SIP 8-34-301.2]
 - b. The flare destruction efficiency for total non-methane organic compounds (NMOC) shall not be less than 98% by weight unless the outlet NMOC concentration is less than 20 ppmv, expressed as hexane at 3% oxygen on a dry basis. [Basis: 40 CFR 60.752(b)(2)(iii)(B)]
 - c. Effective July 1, 2002, the flare destruction efficiency for total non-methane organic compounds (NMOC) shall not be less than 98% by weight unless the outlet NMOC concentration is less than 30 ppmv, expressed as methane at 3% oxygen on a dry basis. This subpart is not federally enforceable unless EPA approves the October 6, 1999 version of Regulation 8, Rule 34 into the SIP. [Basis: 8-34-301.3]

Condition # 17309, Part 30:

The emission limits in Parts 24, 25, and 26 were based on the following information:

	Max Firing Rate, MM BTU/hour	Emission Factors, pounds/MM BTU	Max Operating Rate, hours/year	Max Emissions, tons/year
NO _x	72.7	0.054	8760	17.2
CO	72.7	0.270	8760	86.0
POC	72.7	0.022	8760	7.0

Currently, compliance with these emission limits is determined by multiplying the hourly emission rates determined during the source test (pounds/hour) by the maximum operating rates (24 hours/day and 365 days/year) and converting the resulting annual emission rates from pounds to tons (2000 pounds/ton). The intention of Part 30 was to continue this same procedure. Therefore, Part 30 should have read: "The hourly source test data and maximum firing operating rate of the flare shall be used to determine the projected annual emissions of NO_x, CO, and POC." Part 30 will be modified as indicated above unless we reach agreement on the alternative condition changes proposed below.

After further review of Parts 24, 25, 26, 30, and 35, the District concludes that annual emission limits for NO_x, CO, and POC will protect the cumulative emission increase limits for these pollutants. However, these annual emission limits are not adequate indicators of flare performance and do not satisfactorily demonstrate compliance with the applicable RACT requirements. Outlet concentration limits that are equivalent to the emission factor limits listed above combined with the daily and annual heat input limits listed in Part 35 would adequately protect both cumulative emission increase limits and RACT limits. Outlet concentration limits would also simplify the source test compliance demonstration. Detailed calculations for these proposed outlet concentration limits are attached. The District is proposing the following alternative changes to your requested revisions of Part 30.

24. NO_x emissions from the A-1 flare shall not exceed ~~17.27 tons per year~~ 14 ppmv of NO_x, expressed as NO₂ at 15% oxygen on a dry basis. [Basis: RACT, Cumulative Increase]
25. CO emissions from the A-1 flare shall not exceed ~~86.33 tons per year~~ 114 ppmv of CO at 15% oxygen on a dry basis. [Basis: RACT]
26. POC emissions from the A-1 flare shall not exceed ~~7.0 tons per year~~ 49 ppmv of POC, expressed as methane at 3% oxygen on a dry basis. Effective July 1, 2002, this limit shall be replaced by the more stringent limit listed in Part 29.c. [Basis: Cumulative Increase]
30. In order to demonstrate compliance with parts #24, #25, #26, and #29, the owner/operator shall conduct a source test at A-1 once every year. The source tests shall be conducted no sooner than 9 months and no later than 12 months after the previous source test. ~~The hourly source test data and maximum firing rate of the flare shall be used to determine the projected annual emissions of NO_x, CO, and POC. As a minimum, the source test shall determine the flare outlet concentrations of oxygen, nitrogen oxides, carbon monoxide, total hydrocarbons, and non-methane hydrocarbons, and. The source test shall also determine the destruction efficiencies achieved by the flare for total hydrocarbons and non-methane hydrocarbons.~~ All test results shall be provided to the District within 45 days after testing has occurred. All source test methods used shall be subject to the prior approval of the Source Test Section of the District Technical Division. The applicant shall contact the District source Test Section prior to performing the source test regarding the proper source test procedures and shall contact both the Source Test Section and Permit Services

Division in writing 7 days prior to the source test date. [Basis: 8-34-301, RACT, 40 CFR 60.752(b)(2)(iii)]

Condition # 17309, Part 32:

The concentration limits listed in Part 32 were based on the average concentrations detected in the 1995 through 1999 source tests plus a 95% confidence interval. These site specific concentrations and the site specific annual waste acceptance data provided by the applicant were then used to calculate maximum projected annual average emission rates using the AP-42 equations and AP-42 default values for all other variables. Although the landfill gas was analyzed for many additional compounds, only the compounds listed in Part 32 were determined to have maximum projected annual average emission rates that exceeded the risk screen trigger levels listed in Table 2-1-316. The detailed calculations are presented in the engineering evaluation for Permit Application # 758.

The risk screening analysis for Application # 758 indicated that this facility complied with the District's Toxic Risk Management Policy by having a maximum projected increased cancer risk from the landfill and flare of less than 1 in a million. However, the October/November 2000 source test data indicated that the concentrations of benzene and vinyl chloride have exceeded the maximum expected concentrations. The District is conducting a revised risk screening analysis to ensure that these higher concentration levels will not result in a significant facility risk in the future. It should be noted that current annual emissions based on the most recent source test data have not exceeded the previous maximum projected annual average emission rates.

Condition # 17309, Part 33:

The District agrees that you should be allowed to determine a site-specific value for the percentage of POC in the landfill gas versus NMOC. This site-specific POC percentage can be calculated using the data collected pursuant to Part 31. You can analyze the landfill gas for additional compounds, if desired. The District does consider acetone to be a non-precursor organic compound, which may be subtracted from the total NMOC concentration. All concentration measurements should be converted to the same basis (expressed as methane), with the assumption that $POC = NMOC - NPOC$. The October/November 2000 source test data indicated that your landfill gas contains 65% POC in the total NMOC. The proposed change is noted below.

For Part 33.f., the default collection system efficiency of 75% was used to establish the POC emission limit of 46.092 tons/year. Using the default values to establish emission limits is acceptable when no site-specific data is available. Consequently, the same methodology should be used for determining compliance with the emission limit. A comparison of the actual amount of landfill gas collected to the projected landfill gas generation rate is not an accurate indicator of the collection system efficiency unless the validity of the generation rate model has been proven independently. Since the accuracy of the generation rate model for this facility is not known, the District will continue to rely upon the AP-42 default collection system efficiency of 75%.

33. The combined emissions of Precursor Organic Compounds (POC) from the S-1 Landfill and the A-1 Flare shall not exceed 46.092 tons per year (expressed as hexane). POC emissions from the landfill and flare shall be determined using the procedures and assumptions described in Parts 33.a.-h. below. POC emissions from the landfill and flare shall be calculated at least once every five years or whenever the capacity of the landfill gas emissions control systems (A-1 Flare and S-1, S-2, and S-3 IC Engines at Plant #12101) are expanded, whichever is sooner.
- The current methane generation rate and uncontrolled POC emissions from the S-1 Landfill shall be calculated using the equations described in the most recent revision of AP-42 Chapter 2.4.
 - The methane generation rate shall be based on the total amount of waste accepted at the landfill to date. The Permit Holder may use either average annual or year-to-year waste acceptance rates.
 - The Permit Holder shall use the AP-42 recommended default values for the methane generation potential and methane generation rate constant. As of May 1, 2000, these default values were:

$$L_0 = 100 \text{ m}^3 \text{ CH}_4/\text{Mg}$$

$$k = 0.04 \text{ year}^{-1}$$
 - When calculating uncontrolled POC emissions (UEPOC, pounds/year of POC), the Permit Holder shall use site-specific NMOC, NPOC, and methane concentrations (after correcting for air infiltration) and the site-specific landfill gas temperature. The site specific values shall be the average of at least three previous years of data collected pursuant to Part #31 above.
 - Total non-methane organic compounds (NMOC) measured in the landfill gas pursuant to Part #31 ~~are~~ may be assumed to be 100% POC, or a site specific POC concentration (CPOC) can be calculated using data from Part 33.d. above, where CPOC = NMOC – NPOC (all concentrations expressed as methane).
 - The fugitive POC emissions from the landfill (FEPOC, pounds/year of POC) shall be calculated using the equation below:

$$\text{FEPOC} = 0.25 * \text{UEPOC}$$
 - POC emissions from the A-1 Flare (CEPOC, pounds/year of POC) shall be calculated using the following equation where QFLFG is the actual amount of landfill gas delivered to the flare (ft³/year), CPOC is the site specific NMOCPOC concentration in the landfill gas (ppmv, after correction for air infiltration), and T is the site specific landfill gas temperature (degrees F).

$$\text{CEPOC} = 2.36 \text{ E-}6 * \text{QFLFG} * \text{CPOC} / (460 + T)$$
 - The combined POC emissions from the S-1 Landfill and A-1 Flare (TEPOC, tons/year of POC) shall be calculated using the following equation:

$$\text{TEPOC} = (\text{FEPOC} + \text{CEPOC}) / 2000$$
- [Basis: Offsets]

Condition # 17309, Part 34:

Regulation 9-1-302 contains a general requirement limiting the concentration of sulfur dioxide to less than 300 ppm on a dry basis. You are correct in saying that the rule does not require monitoring for the general requirement. As was explained above in the response to general comments, monitoring for limits where the applicable requirement contains no monitoring is required by the 40 CFR, Part 70 regulations.

However, the District agrees to reduce the monitoring frequency from a weekly basis to a quarterly basis in accordance with the suggested monitoring frequency in the CACOA/ARB/EPA agreement.

34. Total reduced sulfur compounds in the collected landfill gas shall be monitored as a surrogate for monitoring sulfur dioxide in control systems exhaust. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the Permit Holder shall measure the total sulfur content in collected landfill gas on a weekly-quarterly basis using a draeger tube. The landfill gas sample shall be taken from the main landfill gas header. The Permit Holder shall follow the manufacturer's recommended procedures for using the draeger tube and interpreting the results. ~~The Permit Holder shall conduct the first draeger tube test no later than 3 months after the issue date of the MFR Permit and weekly thereafter. After collecting three months of landfill gas sulfur content data, the Permit Holder may reduce the sulfur content testing frequency to a monthly basis, if all tests indicate compliance with the limit specified above. After collecting one year of sulfur content data, the Permit Holder may reduce the sulfur content testing frequency to a quarterly basis, if all tests indicate compliance with the limit specified above.~~ [Basis: 9-1-302]

Condition # 17309, Parts 36 and 37:

Soil containing 50 ppmw of VOC or less is not considered to be "contaminated" and is subject to Part 36 but not Part 37. For the equation in Part 36, the variable "C" is the VOC Content of the soil upon receipt by the landfill. Your statement on page 6 of your letter that this equation "... assumes 100% volatility of contaminated soils within one hour of reaching the landfill" is not correct. First, this equation only applies to soils that contain VOCs but that are not "contaminated". Contaminated soils are subject to Part 37 but not Part 36. Second, this equation assumes that 100% of the VOC Content in the soil (as received at the landfill) will be emitted in one day, not one hour. The District agrees that such VOC emissions may not occur all in one day. VOC will be emitted each time the soil is handled and during each day that the soil is exposed to the atmosphere (during storage or aeration). Since non-contaminated soil has no limits on the types of handling activities that may occur, the number of times soil is handled per day, or the duration of atmosphere exposure time, all of the VOC that remains in the soil when it arrives at the landfill will eventually be emitted to the atmosphere. While it may be possible to develop a more accurate estimate of the percentage of emissions that occur during each on-site handling event, during each day that soil is stored, and during each day that soil is aerated, tracking all of the individual daily emission rates for each soil lot that has not yet been covered by other materials would require cumbersome records. Therefore, staff continues to support using the assumption that 100% of the VOC in the soil (upon arrival at the landfill) will be emitted during one day. This assumption is conservative enough to ensure compliance with the Regulation 8-2-301 standard; and it simplifies the record keeping necessary to demonstrate compliance with 8-2-301.

The District does agree that some VOC emissions will occur between the time that the soil is sampled at the generator site and the time that the soil arrives at the landfill. The rules and permit conditions allow sites to determine whether or not the soil is contaminated by using the VOC Content measured at the generator site or by measuring the VOC Content of the soil measured upon receipt by the landfill. Since the equation in Part 36 is based the VOC Content of the soil upon receipt by the landfill, the development of a second emission equation based on the VOC Content of the soil measured at the generator site may be justified.

However, the District does not agree with the analysis or conclusions discussed in the "Technical and Regulatory Analysis Relating to the Handling of VOC Soil and VOC Contaminated Soil". Table 1 in this analysis misrepresents the reference that it was based on (Table 15 of your cited Reference 6). Table 15 presents the fractional contributions of various activities to the total VOC emissions that occur

at a remediation site and not percentage emitted of the total VOC that was measured in the soil. Your Table 1 also incorrectly describes the fifth activity as “Exposure of Contaminated Soil” and seems to infer that this exposure only occurs at a site other than the waste generator site. Table 15 actually calls this activity “Exposure of contaminated zone” and refers to the exposure of the contaminated soil still in the ground at the generator site. As stated on page 19 of the Reference 6 document, “Once the material was offsite, emissions were no longer considered.” This statement does not mean that the offsite emissions were zero but rather that the offsite emissions were outside the scope of the study. Therefore, Table 15 of Reference 6 actually indicates that, if you know that 100 pounds of VOC have been emitted prior to receipt by an offsite entity, then 83 pounds of those emissions occurred due to excavation, truck loading, and transport. The remaining 17 pounds of VOC emissions occurred during exposure of the “contaminated zone” at the generator site. Table 15 provides no information about the VOC Content measured at the landfill compared to the VOC Content measured at the generator site.

The type of soil, type and age of contamination, number of handling steps, type of excavation/handling/storage activities, and transport practices will impact the amount of VOC that is emitted before the soil is received by the landfill. District staff is currently evaluating the referenced EPA documents to determine if sufficient information is available to develop a conservative estimate of the percent reduction in the soil VOC Content measured at the generator site (between the time the soil is sampled at the generator site and the time the soil arrives at the landfill). Upon completion of this evaluation, the District will consider revising Part 36.

Response to Comments on Applicable Limits and Compliance Monitoring Requirements

Tables VII-A through VII-D will be modified to reflect the condition changes noted in this letter.

The design plan for the Keller Canyon Landfill contained no specific proposals for alternative wellhead requirements. As a result, no alternatives were reviewed or approved. Since there are no approved alternative limits stated in permit conditions, Regulation 8-34-305 requires that the facility comply with the 8-34-305 wellhead requirements. Therefore, adding a general condition allowing alternative compliance limits would not be appropriate.

Response to Comments on Test Methods

The design plan contained no specific requests for alternative test methods. Therefore, none have been reviewed or approved. Most of the test methods referenced in Regulation 8, Rule 34 (Sections 601-608) do not allow the use of a test method not specifically cited, even if the APCO and EPA have approved the test method. Therefore, adding general language in the Title V permit to allow the use of additional test methods would not be appropriate.

The District will prepare a revised MFR permit, which will include the permit condition changes noted in this letter and any necessary changes to Tables II and VII. This revised permit will be forwarded to EPA for final approval.

Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items separate as specified in Regulation 2 Rule 1 Section 202.7, please circle those items in your submittals, write “confidential” at the top of the page and append a written explanation for your confidentiality request.

Application #17348

Plant # 4618

August 8, 2001

Please include your application number with any correspondence with the District. If you have any further questions, please call me at (415) 749-4704 or your Permit Engineer, Carol Allen, at (415) 749-4702.

Very truly yours,

William deBoisblanc
Director, Permit Services Division

Cc: Mr. Norm Christensen
Keller Canyon Landfill
901 Bailey Road
Pittsburg, CA 94565

WDB:CSA:csa

Attachment 1

Derivation of Proposed Concentration Limits for the A-1 Flare Landfill Gas

Current Basis for Annual Emission Limits:

	Max Firing Rate MM BTU/hour	Emission Factors pounds/MM BTU	Max Operating Rate hours/year	Max Calculated Emissions tons/year	Current Emission Limits tons/year
NO _x	72.7	0.054	8760	17.2	17.27
CO	72.7	0.270	8760	86.0	86.33
POC	72.7	0.022	8760	7.0	7.0

The reasons for the minor discrepancies between the maximum calculated emissions and current emission limits for NO_x and CO are not known. The discrepancies are suspected to be due to clerical errors.

Calculation of Conversion Factors

Standard Molar Volume (SMV)

$$\text{SMV} = (0.7302 \text{ ft}^3\text{-atm/lbmol}\cdot^\circ\text{R}) / (1 \text{ atm}) \cdot (68 + 460 \text{ }^\circ\text{R}) = 385.55 \text{ s.ft}^3/\text{lbmol}$$

Average Methane Content in Landfill Gas = 55%

Average Landfill Gas Heat Content (HHV_{LFG})

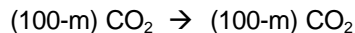
$$\text{HHV}_{\text{LFG}} = (0.55 \text{ s.ft}^3 \text{ CH}_4 / \text{s.ft}^3 \text{ LFG}) \cdot (1013 \text{ BTU/s.ft}^3 \text{ CH}_4)$$

$$\text{HHV}_{\text{LFG}} = 557 \text{ BTU/s.ft}^3 \text{ LFG}$$

Dry Flue Gas Factor for Landfill Gas (F_{LFG})

Landfill Gas Composition: m% CH₄ and (100-m)% CO₂ and other gases
The CO₂ and other gases are assumed to have negligible combustion products.

Combustion Equations:



Dry Flue Gas Factor (F) = $\frac{\text{moles combustion products (excluding water)}}{\text{moles of landfill gas burned}}$

$$\begin{aligned} F &= (m + 7.54654m + 100 - m) / (m + 100 - m) = (7.54654m + 100) / 100 \\ &= (0.0754654m + 1) \text{ s.ft}^3 \text{ dry flue gas} / \text{s.ft}^3 \text{ of landfill gas} \end{aligned}$$

For F_{LFG}, assume methane concentration (m) is 55%.

$$F_{\text{LFG}} = (0.0754654 \cdot 55 + 1) = 5.15 \text{ s.ft}^3 \text{ dry flue gas} / \text{s.ft}^3 \text{ of landfill gas}$$

Oxygen Content Correction Factors

$$\begin{aligned} \text{PPM}_{15\%} &= \text{PPM}_{0\%} \cdot (20.95-15)/(20.95-0) \\ \text{PPM}_{15\%} &= 0.284 \cdot \text{PPM}_{0\%} \end{aligned}$$

$$\begin{aligned} \text{PPM}_{3\%} &= \text{PPM}_{0\%} \cdot (20.95-3)/(20.95-0) \\ \text{PPM}_{3\%} &= 0.8568 \cdot \text{PPM}_{0\%} \end{aligned}$$

Calculation of Proposed NO_x Concentration Limit

$$\begin{aligned} \text{PPM}_{0\%} &= (0.054 \text{ pounds NO}_x/\text{MM BTU}) / (46.01 \text{ pounds NO}_x/\text{lbmol NO}_x) \cdot (385.55 \text{ s.ft}^3 \text{ NO}_x / \text{lbmol NO}_x) \\ &\quad \cdot (1 \text{ MM BTU}/10^6 \text{ BTU}) \cdot (557 \text{ BTU}/\text{s.ft}^3 \text{ LFG}) / (5.15 \text{ dry s.ft}^3 \text{ flue gas/scf LFG}) \cdot 10^6 \\ \text{PPM}_{0\%} &= 48.94 \text{ ppm of NO}_x \text{ in dry flue gas at 0\% oxygen} \end{aligned}$$

$$\text{PPM}_{15\%} = 0.284 \cdot (48.94) = 13.9 \text{ ppmv of NO}_x \text{ in dry flue gas corrected to 15\% oxygen}$$

Proposed Limit is 14 ppmv of NO_x, dry basis, corrected to 15% oxygen

Calculation of Proposed CO Concentration Limit

$$\begin{aligned} \text{PPM}_{0\%} &= (0.270 \text{ pounds CO/MM BTU}) / (28.01 \text{ pounds CO/lbmol CO}) \cdot (385.55 \text{ s.ft}^3 \text{ CO} / \text{lbmol CO}) \\ &\quad \cdot (1 \text{ MM BTU}/10^6 \text{ BTU}) \cdot (557 \text{ BTU}/\text{s.ft}^3 \text{ LFG}) / (5.15 \text{ dry s.ft}^3 \text{ flue gas/scf LFG}) \cdot 10^6 \\ \text{PPM}_{0\%} &= 401.96 \text{ ppm of CO in dry flue gas at 0\% oxygen} \end{aligned}$$

$$\text{PPM}_{15\%} = 0.284 \cdot (401.96) = 114.2 \text{ ppmv of CO in dry flue gas corrected to 15\% oxygen}$$

Proposed Limit is 114 ppmv of CO, dry basis, corrected to 15% oxygen

Calculation of Proposed POC Concentration Limit

$$\text{PPM}_{0\%} = (0.022 \text{ pounds POC/MM BTU}) / (16.04 \text{ pounds POC as methane/lbmol POC as methane}) * \\ (385.55 \text{ s.ft}^3 \text{ POC / lbmol POC}) * (1 \text{ MM BTU}/10^6 \text{ BTU}) * (557 \text{ BTU/ s.ft}^3 \text{ LFG}) / \\ (5.15 \text{ dry s.ft}^3 \text{ flue gas/scf LFG}) * 10^6$$

$$\text{PPM}_{0\%} = 57.19 \text{ ppm of POC as methane in dry flue gas at 0\% oxygen}$$

$$\text{PPM}_{15\%} = 0.284 * 57.19 = 16.2 \text{ ppmv of POC as methane in dry flue gas corrected to 15\% oxygen}$$

$$\text{PPM}_{3\%} = 0.8568 * 57.19 = 49.0 \text{ ppmv of POC as methane in dry flue gas corrected to 3\% oxygen}$$

Current and Future Emission Limits Comparison

Citation	Effective Date	Expiration Date	Pollutant	Limit	Equivalent Basis
SIP 8-34-301.2	11-17-93	upon SIP approval of 301.3	THC	98% destruction	no alternative outlet concentration limit
BAAQMD 8-34-301.3	10-6-99	7-1-02	THC	98% destruction	no alternative outlet concentration limit
BAAQMD 8-34-301.3	7-1-02	none	NMOC	98% destruction or 30 ppmv as CH ₄ , dry, 3% O ₂	30 ppmv as CH ₄ , dry, 3% O ₂
40 CFR 60.752(b) (2)(iii)(B)	12-10-98	none	NMOC	98% destruction or 20 ppmv as C ₆ H ₁₄ , dry, 3% O ₂	120 ppmv as CH ₄ , dry, 3% O ₂
Emission Factor	12-6-95	none	POC	0.022 lbs/MMBTU	49 ppmv as CH ₄ , dry, 3% O ₂
Emission Factor	none	none	NMOC *	for comparison only	75 ppmv as CH ₄ , dry, 3% O ₂

* Per 10/18/00 and 11/6/00 source test data, POC = 65% of NMOC.

Proposed Limit is 49 ppmv of POC, expressed as methane, dry basis, corrected to 3% oxygen, which will be replaced by the more stringent limit of 30 ppmv of NMOC, expressed as methane, dry basis, corrected to 3% oxygen (BAAQMD 8-34-301.3) effective 7/1/02.